REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

The Examiner rejects Claims 1-3, 5-12, 17-25, 31-37 and 40 under 35 U.S.C. Section 103(a) as being patentable over Neukermans ‘618 in review of Roszhart. With respect to Claim 1, the Examiner states that Neukermans’ does not teach apparatus coupled to a device for selectively adjusting the stress loading upon said pair of torsional hinges to change a parameter of said pivotal oscillations. The Examiner states that Roszhart teaches apparatus coupled pivotal device for selectively adjusting the stress loading on said pair of torsional hinges to change a parameter of said pivotal oscillations and specifically refers to Column 3, lines 34-42.

We cannot agree. Roszhart teaches an accelerometer, in which resonators (23) and (30) are connected to a substrate (18) and two movable masses (20, 22). The resonators electrically oscillate at a given frequency and are connected to the moving masses (20, 22) so that one of the resonators sees a compressive force when acceleration is applied to the sensor and the other sees a tension force. This forces the resonators to change frequency in opposite directions so that a differential signal of the frequency change determines the amount of acceleration applied to the sensor.

It is clear from Figures 6A, 6B, and 7A, 7B that an electronic circuit is formed on the integrated circuit device, see, for example, Column 8, Line 8 through Column 9, Line 40. As a force is applied to the sensor, the segments (20, 22) move and change the electrical frequency of the signals generated and the differential of this frequency is a measure of acceleration.

In sharp contrast, the present invention has a functional surface which is pivotally oscillating around a pair of functional hinges. It should be noticed that hinges in Roszhart are not torsional hinges because there is no twisting or torsion motion of the hinges.

Thus, there can be no functional surface that pivotically oscillates on those hinges. Elements (20, 22) pivot about the substrate using flexor hinges, see for example, Column 5, Line 65 through Column 6 Line 6. Thus, in this reference the mechanical force applied to the sensor to change the frequency characteristics of the electrical resonators and differential frequency change is used to measure acceleration.

In sharp contrast in the present invention, the functional surface, such as a mirror, pivotally oscillates around a pair of torsional hinges at a mechanical frequency, which may be the resonant frequency of the device. The electrical signal is used to apply mechanical tension or compression forces to the hinges to change the resonant frequency thereof. Claim 1, for example, already recites that the functional surface is supported by a pair of torsional hinges for pivotally oscillating around said pair of torsional hinges, which already distinguishes the present invention from the cited reference. In addition, Claim 1 recites apparatus coupled to device for selectively adjusting stress loading on the pair of torsional hinges to change a parameter of the pivotal oscillations, which is clearly not shown by Roszhart.

The Examiner states that Claims 4, 14, 15, 18, 26-30, 38, 39, 41-46 are objected to as being dependent upon a rejected base claim that will be allowable if rewritten in independent form including all the limitations of base claim and any remaining claim. Applicants note that Claim 26 is an independent Claim and therefore understand that Claims 26-30 are allowed. Applicants have amended Claims 4, 14, 15, 38, 39 to be independent claims including all of the limitations of the base claim and the intervening claims. These claims should now be in condition for allowance. Claims 41-46 are dependent directly or independently on Claim 39, which has been placed into condition for allowance, as stated above, so that these claims should now be in condition for allowance. Applicants have amended Claim 1 only to remove the word “the” before “stress” on the second to the last line of the original claim, as there’s no antecedent basis for the term of the body of the claim. Applicants submit Claims 1, 26 and 31 and the claims dependent thereto are clearly distinguished from the references as cited by the Examiner and there thus in condition for allowance.

Accordingly, Applicant believes that the application, as amended, is in condition for allowance, and this action is respectfully requested.

Respectfully submitted,

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